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A falling cloud of particles at small but finite Reynolds number
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— Through a comparison between experiments and numerical simulations, we have examined the dynamics of a cloud of spheres at small but finite Reynolds number. The cloud is seen to flatten and to transition into a torus which further widens and eventually breaks up into droplets. While this behaviour bears some similarity with that observed at zero-inertia, the underlying physical mechanisms differ. Moreover, the evolution of the cloud deformation is accelerated as inertia is increased. Two inertial regimes where macro-scale inertia and micro-scale inertia become successively dominant are clearly identified.

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